

## WHAT IS CLAIMED IS:

- 1     1.     A sensor ID registration method of registering an ID of an air pressure  
2     sensor mounted on each of tires of a vehicle in a memory in a state where a  
3     position of the tire is identifiable, with said air pressure sensor being equipped  
4     with a reception function and a plurality of transmitters being provided on a body  
5     of said vehicle, each of said transmitters being made to place only one of the tires  
6     in its transmission area, said method comprising:  
7         a transmission step in which one of said air pressure sensors transmits its  
8     own ID in response to an ID transmission request transmitted from one of said  
9     transmitters;  
10        a reception step in which a receiver of said vehicle body receives said ID  
11     transmitted in said transmission step; and  
12        a registration step in which said ID received in said reception step is  
13     registered in said memory while specifying the tire position in relation to said  
14     transmitter which has transmitted said ID transmission request.
  
- 1     2.     A sensor ID registration method of registering an ID of an air pressure  
2     sensor mounted on each of tires of a vehicle in a memory in a state where a  
3     position of the tire is identifiable, with said air pressure sensor being equipped  
4     with a reception function, said method comprising:  
5         a transmission step in which an ID transmission request is transmitted  
6     from one of transmitters placed on doors of said vehicle for smart control so that  
7     one of said air pressure sensors transmits its own ID;  
8         a reception step in which a receiver of a body of said vehicle receives said  
9     ID transmitted in said transmission step; and  
10        a registration step in which said ID received in said reception step is  
11     registered in said memory while specifying the tire position in relation to said  
12     transmitter which has transmitted said ID transmission request.

1     3.     The method according to claim 1, wherein each of said steps is repeatedly  
2     implemented while said transmitters are rotated to transmit said ID transmission  
3     requests in turn so that said IDs related to all said tires are registered in said  
4     memory.

1     4.     The method according to claim 2, wherein each of said steps is repeatedly  
2     implemented while said transmitters are rotated to transmit said ID transmission  
3     requests in turn so that said IDs related to all said tires are registered in said  
4     memory.

1     5.     The method according to claim 1, wherein said IDs of said air pressure  
2     sensors of the tires of his/her own vehicle are registered in said memory in  
3     advance and said ID received from said air pressure sensor in response to said ID  
4     transmission request is collated with the registration contents in said memory to  
5     confirm that the received ID pertains to said air pressure sensor of the tire of  
6     his/her own vehicle and, after the confirmation thereof, the ID registration is made  
7     to specify the tire position.

1     6.     The method according to claim 2, wherein said IDs of said air pressure  
2     sensors of the tires of his/her own vehicle are registered in said memory in  
3     advance and said ID received from said air pressure sensor in response to said ID  
4     transmission request is collated with the registration contents in said memory to  
5     confirm that the received ID pertains to said air pressure sensor of the tire of  
6     his/her own vehicle and, after the confirmation thereof, the ID registration is made  
7     to specify the tire position.

1     7.     The method according to claim 1, wherein said air pressure sensor is made  
2     to transmit its own ID in a manner that involves identifying a reply made with  
3     respect to said ID transmission request.

1 8. The method according to claim 2, wherein said air pressure sensor is made  
2 to transmit its own ID in a manner that involves identifying a reply made with  
3 respect to said ID transmission request.

1 9. The method according to claim 1, wherein, when an ID is already  
2 registered in said memory in the form of specifying the tire position, the ID  
3 registration is made by overwriting the already registered information.

1 10. The method according to claim 2, wherein, when an ID is already  
2 registered in said memory in the form of specifying the tire position, the ID  
3 registration is made by overwriting the already registered information.

1 11. The method according to claim 1, wherein each of said steps is  
2 implemented in response to a predetermined trigger.

1 12. The method according to claim 2, wherein each of said steps is  
2 implemented in response to a predetermined trigger.

1 13. The method according to claim 1, wherein each of said steps is  
2 implemented when an ignition switch of said vehicle shows a variation in state.

1 14. The method according to claim 2, wherein each of said steps is  
2 implemented when an ignition switch of said vehicle shows a variation in state.

1 15. A tire air pressure sensor ID registration system which is made to register  
2 an ID of an air pressure sensor mounted on each of tires of a vehicle in a memory  
3 in a state where a position of the tire is identifiable, with said air pressure sensor  
4 being equipped with a reception function, said system comprising:

5           a plurality of transmitters provided in a body of said vehicle, each of said  
6 transmitters being made to place only one of the tires in its transmission area;  
7           a receiver provided in said vehicle body for receiving said ID transmitted  
8 from said air pressure sensor;  
9           transmitter operating means for making one of said transmitters transmit  
10 an ID transmission request; and  
11           ID registration means for registering said ID received by said receiver in  
12 said memory while specifying the tire position on the basis of the relationship  
13 with said transmitter put into operation by said transmitter operating means.

1   16.    A tire air pressure sensor ID registration system which is made to register  
2 an ID of an air pressure sensor mounted on each of tires of a vehicle in a memory  
3 in a state where a position of the tire is identifiable, with said air pressure sensor  
4 being equipped with a reception function, said system comprising:  
5           transmitters for smart control provided on doors of said vehicle;  
6           a receiver provided in a body of said vehicle for receiving said ID  
7 transmitted from said air pressure sensor;  
8           transmitter operating means for making one of said transmitters transmit  
9 an ID transmission request; and  
10          ID registration means for registering said ID received by said receiver in  
11 said memory while specifying the tire position on the basis of the relationship  
12 with said transmitter put into operation by said transmitter operating means.

1   17.    The system according to claim 15, wherein said transmitter operating  
2 means is constructed as means for, when the ID registration for one air pressure  
3 sensor in said ID registration means reaches completion, making the next  
4 transmitter transmit an ID transmission request, and said ID registration means is  
5 constructed as means for implementing the ID registration whenever said  
6 transmitter operating means is put into activation.

1 18. The system according to claim 16, wherein said transmitter operating  
2 means is constructed as means for, when the ID registration for one air pressure  
3 sensor in said ID registration means reaches completion, making the next  
4 transmitter transmit an ID transmission request, and said ID registration means is  
5 constructed as means for implementing the ID registration whenever said  
6 transmitter operating means is put into activation.

1 19. The system according to claim 15, wherein said IDs of said air pressure  
2 sensors of the tires of his/her own vehicle are registered in said memory in  
3 advance, and said system further comprises ID collation means for collating said  
4 ID received from said air pressure sensor in response to said ID transmission  
5 request with the registration contents in said memory to confirm that the received  
6 ID is an ID of an air pressure sensor of a tire of his/her own vehicle, and said ID  
7 registration means implements the ID registration when said ID collation means  
8 confirms that the received ID is the air pressure sensor ID of the tire of his/her  
9 own vehicle.

1 20. The system according to claim 16, wherein said IDs of said air pressure  
2 sensors of the tires of his/her own vehicle are registered in said memory in  
3 advance, and said system further comprises ID collation means for collating said  
4 ID received from said air pressure sensor in response to said ID transmission  
5 request with the registration contents in said memory to confirm that the received  
6 ID is an ID of an air pressure sensor of a tire of his/her own vehicle, and said ID  
7 registration means implements the ID registration when said ID collation means  
8 confirms that the received ID is the air pressure sensor ID of the tire of his/her  
9 own vehicle.

1     21.     The system according to claim 15, wherein said air pressure sensor  
2     includes registration ID transmission means for transmitting its own ID in a  
3     manner that involves identifying a reply made with respect to an ID transmission  
4     request.

1     22.     The system according to claim 16, wherein said air pressure sensor  
2     includes registration ID transmission means for transmitting its own ID in a  
3     manner that involves identifying a reply made with respect to an ID transmission  
4     request.

1     23.     The system according to claim 15, wherein, when an ID is already  
2     registered in said memory in the form of specifying the tire position, the ID  
3     registration is made by overwriting the already registered information.

1     24.     The system according to claim 16, wherein, when an ID is already  
2     registered in said memory in the form of specifying the tire position, the ID  
3     registration is made by overwriting the already registered information.

1     25.     The system according to claim 15, wherein said transmitter operating  
2     means is put into activation in response to a predetermined trigger.

1     26.     The system according to claim 16, wherein said transmitter operating  
2     means is put into activation in response to a predetermined trigger.

1     27.     The system according to claim 15, wherein said transmitter operating  
2     means is put into activation when an ignition switch shows a variation in state.

1     28.     The system according to claim 16, wherein said transmitter operating  
2     means is put into activation when an ignition switch shows a variation in state.

1     29.     A tire air pressure monitoring system comprising:  
2             air pressure sensors each provided on each of tires of a vehicle for  
3     transmitting its own ID together with air pressure detection data;  
4             a memory for registering said ID of each of said air pressure sensors while  
5     specifying a position of each of the tires;  
6             a receiver provided in a body of said vehicle for receiving said air pressure  
7     detection data and said ID transmitted from said air pressure sensor; and  
8             a control unit for collating said ID received together with said air pressure  
9     detection data with the registration contents in said memory to specify said air  
10    pressure sensor of his/her own vehicle the received air pressure detection data  
11    pertains to and, when detecting a tire which shows abnormality in air pressure,  
12    making an alarm indication on the specified tire, with said air pressure sensors  
13    being equipped with a reception function, said monitoring system comprising:  
14             a plurality of transmitters provided in said vehicle body, each of said  
15    transmitters being made to place only one of the tires in its transmission area;  
16             transmitter operating means for making one of said transmitters transmit  
17    an ID transmission request; and  
18             ID registration means for registering said ID received by said receiver in  
19    said memory while specifying the tire position on the basis of the relationship  
20    with said transmitter put into activation by said transmitter operating means.

1     30.     A tire air pressure monitoring system comprising:  
2             air pressure sensors each provided on each of tires of a vehicle for  
3     transmitting its own ID together with air pressure detection data;  
4             a memory for registering said ID of each of said air pressure sensors while  
5     specifying a position of each of the tires;  
6             a receiver provided in a body of said vehicle for receiving said air pressure  
7     detection data and said ID transmitted from said air pressure sensor; and

8           a control unit for collating said ID received together with said air pressure  
9   detection data with the registration contents in said memory to specify said air  
10   pressure sensor of his/her own vehicle the received air pressure detection data  
11   pertains to and, when detecting a tire which shows abnormality in air pressure,  
12   making an alarm indication on the specified tire, with said air pressure sensors  
13   being equipped with a reception function, said monitoring system comprising:  
14           transmitters for smart control provided on doors of said vehicle;  
15           transmitter operating means for making one of said transmitters transmit  
16   an ID transmission request; and  
17           ID registration means for registering said ID received by said receiver in  
18   said memory while specifying the tire position on the basis of the relationship  
19   with said transmitter put into activation by said transmitter operating means.

1   31.    The system according to claim 30, wherein said transmitter operating  
2   means includes operation command outputting means for outputting a  
3   predetermined command designating a transmitter to be operated with respect to a  
4   smart control system for controlling said transmitter, and said transmitter  
5   operating means is constructed as means for making the transmission of said ID  
6   transmission request by outputting said predetermined command to said smart  
7   control system through the use of the operation command outputting means.

1   32.    The system according to claim 29, wherein said transmitter operating  
2   means is constructed as means for, when the ID registration for one air pressure  
3   sensor in said ID registration means reaches completion, making the next  
4   transmitter transmit an ID transmission request, and said ID registration means is  
5   constructed as means for implementing the ID registration whenever said  
6   transmitter operating means is put into activation.



1 33. The system according to claim 30, wherein said transmitter operating  
2 means is constructed as means for, when the ID registration for one air pressure  
3 sensor in said ID registration means reaches completion, making the next  
4 transmitter transmit an ID transmission request, and said ID registration means is  
5 constructed as means for implementing the ID registration whenever said  
6 transmitter operating means is put into activation.

1 34. The system according to claim 29, wherein said IDs of said air pressure  
2 sensors of the tires of his/her own vehicle are registered in said memory in  
3 advance, and said system further comprises ID collation means for collating said  
4 ID received from said air pressure sensor in response to said ID transmission  
5 request with the registration contents in said memory to confirm that the received  
6 ID is an ID of an air pressure sensor of a tire of his/her own vehicle, and said ID  
7 registration means implements the ID registration when said ID collation means  
8 confirms that the received ID is the air pressure sensor ID of the tire of his/her  
9 own vehicle.

1 35. The system according to claim 30, wherein said IDs of said air pressure  
2 sensors of the tires of his/her own vehicle are registered in said memory in  
3 advance, and said system further comprises ID collation means for collating said  
4 ID received from said air pressure sensor in response to said ID transmission  
5 request with the registration contents in said memory to confirm that the received  
6 ID is an ID of an air pressure sensor of a tire of his/her own vehicle, and said ID  
7 registration means implements the ID registration when said ID collation means  
8 confirms that the received ID is the air pressure sensor ID of the tire of his/her  
9 own vehicle.

1 36. The system according to claim 29, wherein said air pressure sensor  
2 includes registration ID transmission means for transmitting its own ID in a

3 manner that involves identifying a reply made with respect to an ID transmission  
4 request.

1 37. The system according to claim 30, wherein said air pressure sensor  
2 includes registration ID transmission means for transmitting its own ID in a  
3 manner that involves identifying a reply made with respect to an ID transmission  
4 request.

1 38. The system according to claim 29, wherein said ID registration means is  
2 constructed as means for, when an ID is already registered in the memory in the  
3 form of specifying the tire position, making the ID registration by overwriting the  
4 already registered information.

1 39. The system according to claim 30, wherein said ID registration means is  
2 constructed as means for, when an ID is already registered in the memory in the  
3 form of specifying the tire position, making the ID registration by overwriting the  
4 already registered information.

1 40. The system according to claim 29, wherein said transmitter operating  
2 means is put into activation in response to a predetermined trigger.

1 41. The system according to claim 30, wherein said transmitter operating  
2 means is put into activation in response to a predetermined trigger.

1 42. The system according to claim 29, wherein said transmitter operating  
2 means is put into activation when an ignition switch shows a variation in state.

1 43. The system according to claim 30, wherein said transmitter operating  
2 means is put into activation when an ignition switch shows a variation in state.

1 44. A tire air pressure sensor having a function to transmit detection data on  
2 an air pressure of a tire, detected through the use of a pressure sensor, together  
3 with its own ID, said sensor comprising:

4 reception means; and

5 ID transmission means for, when said reception means receives a  
6 predetermined ID transmission request signal, transmitting said ID in a manner  
7 that involves identifying a reply to said ID transmission request.

1 45. A smart control system equipped with exterior-side transmitters on doors  
2 of a vehicle, comprising:

3 command reception decision means made to receive a command from a  
4 tire air pressure monitoring system for making a decision as to whether a  
5 command to the effect that one of said exterior-side transmitters of a vehicle  
6 outputs a predetermined signal to an air pressure sensor constituting said tire air  
7 pressure monitoring system for making a request for transmission of an ID is  
8 received or not;

9 signal outputting transmitter decision means for, when said command  
10 reception decision means makes a decision indicative of the reception of said  
11 command, making a decision on which of said exterior-side transmitters is  
12 indicated by the received command to transmit an ID transmission request; and

13 ID transmission request outputting means for, on the basis of a result of  
14 the decision in said signal outputting transmitter decision means, making one of  
15 said exterior-side transmitters transmit an ID transmission request.